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Journal of the

Electrochemical Society

216 West 102nd Street, New York 25, N.Y.

JUNE 1954 **VOL. 101 • NO. 6**

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Published monthly by The Electrochemical Society, Inc., Mount Royal and Guilford Aves., Baltimore 2, Md., combining the JOURNAL and TRANSACTIONS OF THE ELECTROCHEMICAL SOCIETY. Editorial offices: 216 West 102nd Street, New York 25, N. Y. Statements and opinions given in articles and papers in the JOURNAL OF THE ELECTROCHEMICAL SOCIETY are those of the contributors, and The Electrochemical Society assumes no responsibility for them. Subscription $11.25 to members, $15.00 to nonmembers. Single copies $1.25 to members, $1.50 to nonmembers. Copyright 1954 by The Electrochemical Society, Inc. Entered as second-class matter November 15, 1947, at the Post Office at Baltimore, Md., under the act of August 24, 1912.

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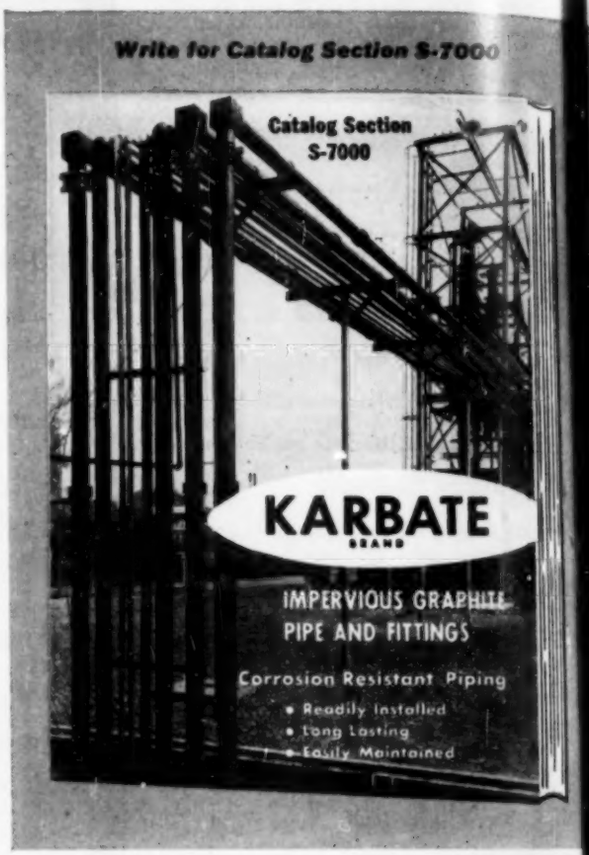

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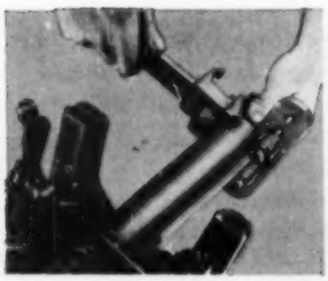

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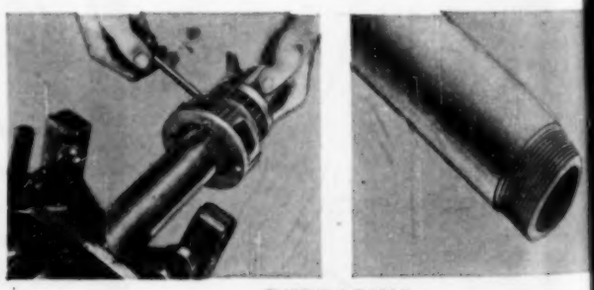

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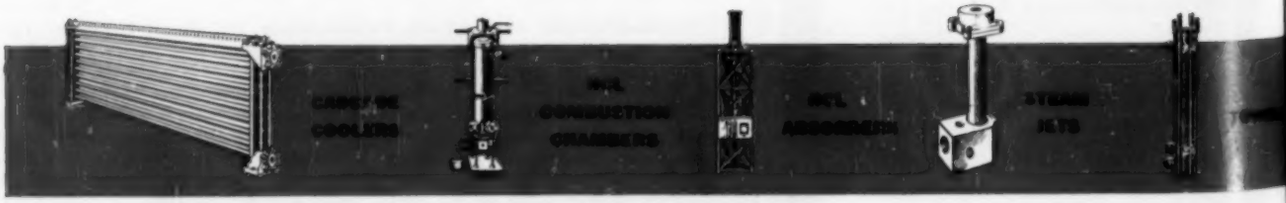

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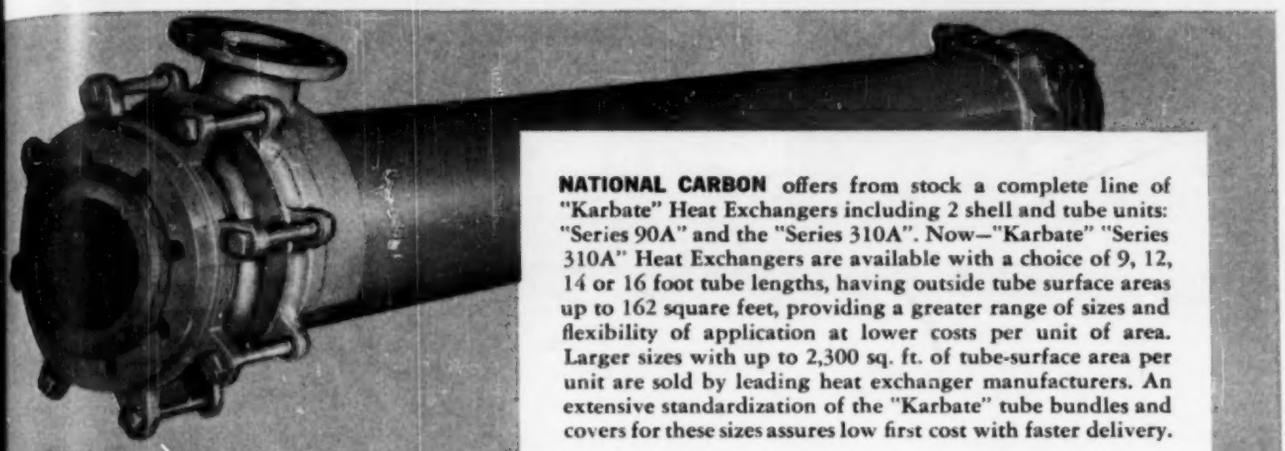

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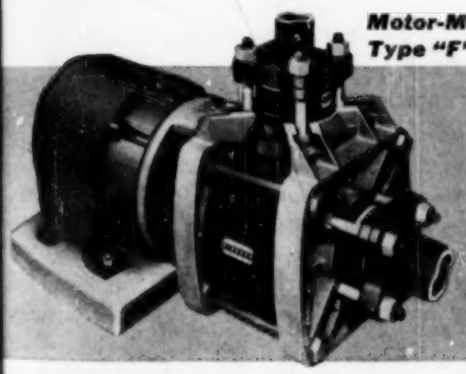

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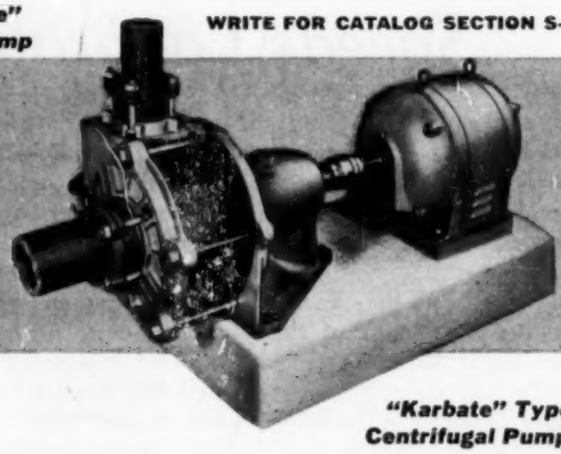

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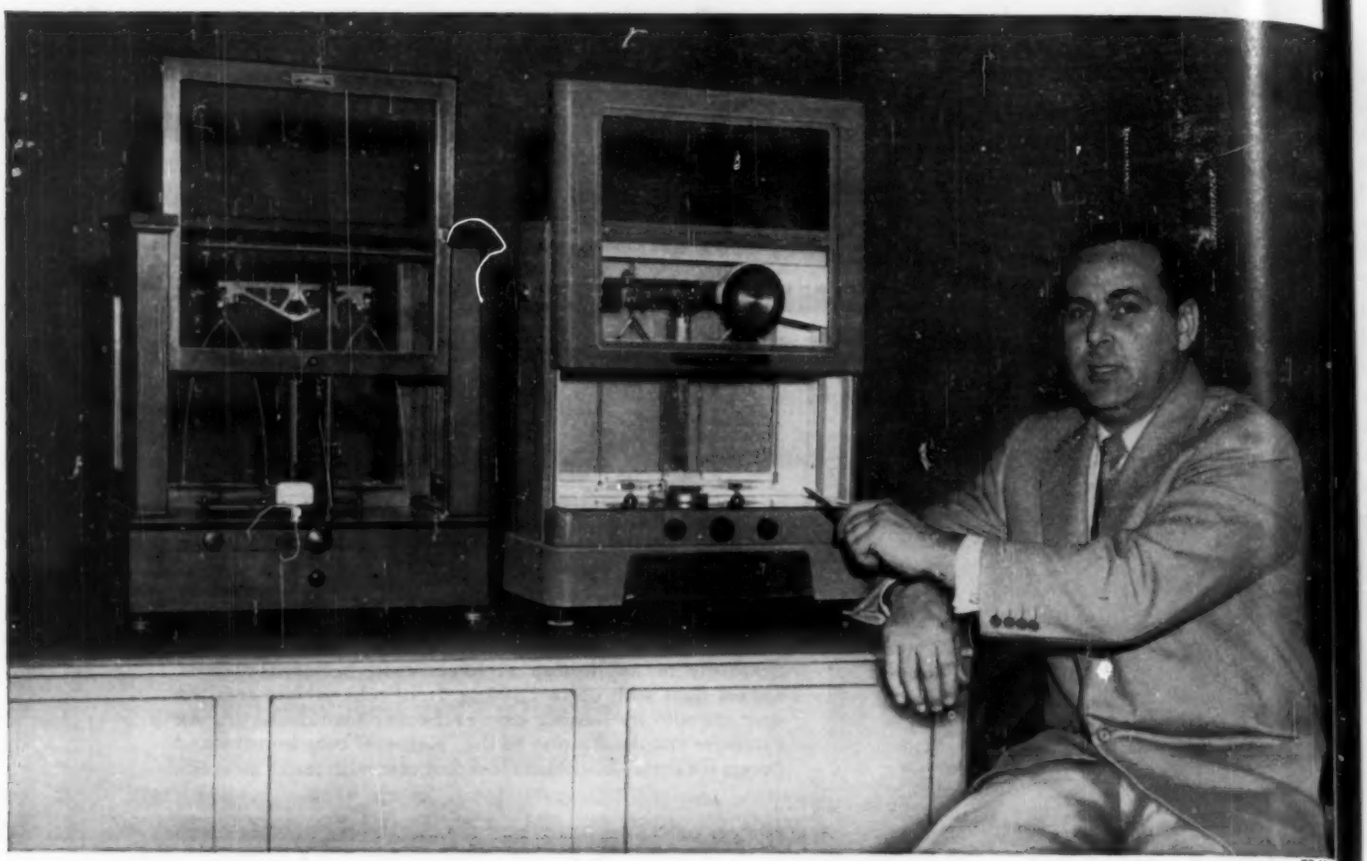

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Editorial

The Gerontological Outlook

"*COMPULSORY* retirement limits are old-fashioned" according to Dr. Martin Gumpert, the eminent geriatrician. He goes on to point out that the retirement practise, still followed by the majority of employers, causes tremendous economic waste, destroys the consumer capacity of a steadily growing segment of our population, and is grossly unjust and physically and emotionally deleterious to the retired individual of physical and mental vigor. There is no doubt that the rapidly increasing proportion of the population 65 years of age and over presents a problem of growing magnitude. As a result of the contributions of chemistry and medicine toward the elimination of infectious diseases, life expectancy of the newly born has risen in the past half century from 47 to 67 for men and 71 for women. During this period, the population of the United States has doubled, but the number who are 65 and over has quadrupled and is at present increasing at the rate of four hundred thousand a year.

Four choices are open to individuals upon retirement. They may continue in gainful employment and about 40% do so. The other choices for them are leisure, idleness, or recreation. Owing to the unnecessary intellectual shrinkage that many undergo in middle life, the leisure of later years all too often degenerates into idleness. Most people have less capacity for leisure than they have for work. With no established place in the cultural and recreational life of their community and no role in the economic system, many spend the later years in loneliness and insecurity. As a consequence, gerontological endeavor in many localities is being directed toward providing for medical care, recreation, appropriate housing, opportunities for gainful employment, and greater participation in the social and cultural activities of the community. Lending emphasis to the movement was the Governor of New York's designation of May as Senior Citizens' Month.

It is becoming recognized that individuals are only as old as their chemistry and that this bears little direct relationship to chronological age. Biochemical and medical research are now directed principally toward discovering the processes of aging and the reactions responsible for the onset of arteriosclerosis, degenerative heart disease, cancer, and obesity. No doubt the complicated and fascinating chemistry of living organisms pertinent to these ailments will provide difficulties as well as excitement to experimental scientists. Progress will be slow, but one may expect the next increase in life expectancy to be in the later years that have not shared appreciably in the gains of the past half century. Thus it may well be that the predicted figure of twenty-five million senior citizens in our population at the end of the century will be exceeded.

Preparation for senior citizenship should begin in early middle life. That is the time to broaden intellectual interests, develop hobbies and serious avocations. So much the better if some of these activities are capable of later expansion into financially profitable endeavors. The main problem, however, is to stay alive mentally and while in the prime of life to grow in intellectual appetite and stamina. He whose sole interest is his job usually does not long survive retirement from it. By the middle years, most people are established in their principal occupations and should be ready for the stimulation of new adventure. They can learn to paint or play a musical instrument, read extensively in the field of art or archeology, study geology or astronomy, learn a foreign language, delve into the records and remains of ancient civilizations, excavate fossils, learn mechanical arts, take up skiing and mountain climbing, collect books, start a greenhouse and experiment with growing orchids—even become an editor! All such activities and many more can make the later years the best of life and probably contribute to the vigor and durability so well exemplified in Horace Walpole's favorite character, the countess who was killed by falling out of an apple tree at the age of 126.

—RMB

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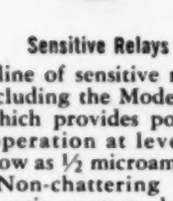

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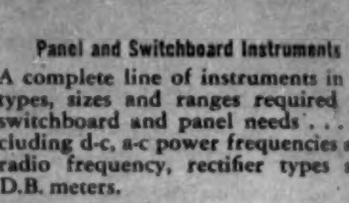

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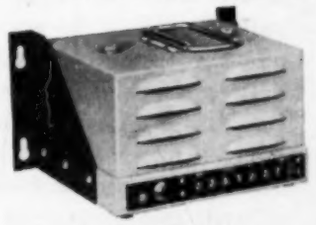

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The laws of stoichiometry and their significance in the development of chemistry are, as before, relegated to two pages of "Historical Remarks" in fine print (pp. 150, 151). The virtues of rigorous argument, of inductive and deductive logic are extolled, but the student will have to look closely for their application. There are, nevertheless, well written paragraphs on the nature of scientific theory, on the matter of precise and imprecise definition, on the value of "successive approximation" in theory as measurements become more exact, on the meaning of temperature, on the distinction between daltonides and berthollides, on the reality of the fundamental particles.

The chemist will feel on surer ground after he reaches Chapter 9 (p. 192). From this point on he has an excellent textbook in general and physical chemistry. There will not be too much disagreement about the order of presentation of elements and their compounds, and of theory. To be sure, some teachers would prefer more analytical properties, more description of industrial processes, especially more suggestions for lecture demonstrations and laboratory experiments. Many will feel that the theory goes too far into semi-advanced physical chemistry. All will feel that the chapters are well written, except that information is often anticipated and not given until later, if at all. As is to be expected from the author, the electronic and spacial structure of molecules, the nature of and variation in covalent bonding are not merely described; the concepts are integrated and applied throughout. The author's electronegativity scale of the elements is presented and used in a logical manner. The concept of resonance is plausibly introduced. The numerous illustrations (drawn by Roger Hayward) are very helpful and are much more interesting and attractive than line drawings.

The author has a disconcerting way of assuming acquaintance with important concepts which may (or may not) be discussed later; and is not always consistent with definitions. For instance, *erg* and *electron volt* are defined early and used consistently; *calorie* is not defined or illustrated in simple examples. One learns that a certain bond type is x kcal more stable than another, but energy in chemical reactions and the relation to spontaneity are not treated until Chapter 31 (p. 633). (In Chapter 32, the distinction between enthalpy and free energy is admirably discussed, in a qualitative way.) Knowledge of the nature of equilibrium is needed long before adequate discussion is given. One feels that Chapters 5 and 6, on the Periodic System, should be written in some reverse order, with properties first, classification later. In Chapter 1, a *constituent* is defined as a *phase*, but this definition is never used again; the electron is a constituent of matter, aluminum is a constituent of minerals, bromine is the photochemically active constituent of a mixture with hydrogen. On p. 319 *steady state* is synonymous with true equilibrium; on p. 417 it denotes a time-independent flow of heat or matter.

Most chapters include several worked-out examples. The student is encouraged to reason each problem out rather than to use a formula or a set method. Numerous problems are given at the end of each chapter; the student who works some of them will find them quite appropriate, and will demonstrate that he has learned his lessons.

CECIL V. KING

CHROMIUM—THE METALLURGY OF THE RARER METALS, No. 1, by A. H. Sully. Published by Academic Press Inc., New York, and Butterworths Scientific Publications, London, 1954. 272 pages, $5.50.

This is a comprehensive compendium of the literature on chromium. Students, research workers, and plant operations personnel will find it a handy reference and textbook.

The book opens with a survey of the occurrence and world-wide distribution of chromium ores. Then the methods for preparing ferroalloys, as well as commercial and high purity chromium, are described. The numerous data on the physical properties of pure chromium have been compiled and critically reviewed.

The shaping of chromium by either melting and casting or by hot working is beset with difficulties which can sometimes be by-passed through the use of powder metallurgy methods. The plastic deformation characteristics of chromium are related to the so-called brittle/ductile transition; this is discussed and an explanation proposed.

Since chromium electroplates and diffused alloy layers on metallic materials have extensive commercial use, it is not surprising that about 25% of the book relates to these subjects. The history, methods, theories, and properties of these superficial layers are given. The final portion of the book is devoted to a discussion of the alloying characteristics of chromium with reference to (*a*) binary and ternary equilibrium diagrams and (*b*) the properties of high chromium alloys.

The foreword states that "Chromium" is the first of a series of books on the metallurgy of the "rare metals." Dr. Sully's work has given this worthwhile project an excellent start.

E. S. GREINER

ZIRCONIUM—METALLURGY OF THE RARER METALS, No. 2, by G. L. MILLER. Published by Academic Press Inc., New York, 1954. xviii + 382 pages, $7.50.

The author's preface states "The reason for writing this book was a desire to collate the information on zirconium which has been flowing at an ever increasing rate from the technical press during the last few years." This objective has been adequately carried out. The book gives a digest of the available information on zirconium and an extensive bibliography is appended at the end of each chapter.

This book may be divided more or less naturally into four sections. The first of these contains information on the availability of zirconium ores, the methods of extraction, and the purification procedures used to prepare pure zirconium compounds. Particular emphasis is placed on the removal of hafnium from which zirconium must be freed if it is to be used for nuclear purposes. A number of references to the newer methods of separating these elements by ion exchange and adsorption mechanisms are cited. The data, however, are for laboratory separations and no information is given for production methods.

The second section of the book is concerned with the production of zirconium sponge and with the preparation of ductile zirconium bars. Detailed information for the production of zirconium sponge by the Kroll process is given. Details for the production of ductile zirconium by the Van Arkel process are for small-scale operations, and in discussing quantity production methods the author draws heavily on the related experience with titanium.

A third section of the book gives an excellent survey of the chemical and physical properties of zirconium and its alloys which should be of especial value to the metallurgical engineer interested in exploring the usefulness of these materials.

The last section of the book deals with zirconium melting and fabricating processes. Arc melting processes are discussed in detail. In addition, a good summary of the newer melting techniques is given, some of which are applicable to other metals where high purity is essential. In regard to fabrication, the methods discussed are conventional for reactive metals. Precautions required in handling zirconium are included in this section.

On the whole this book is concise and well written and should be an excellent reference source for the chemist or metallurgist interested in zirconium.

H. C. THEUERER

CATALYSIS, Volume 1. FUNDAMENTAL PRINCIPLES (Part 1). Edited by P. H. EMMETT. Published by Reinhold Publishing Corp., New York, 1954. 394 pages, $10.00.

This is the first volume in a series which is designed to give an account of the physical chemistry of catalysts and catalytic processing. In view of the rapid advances which have recently been made in the fields of surface chemistry and catalysis, its publication is most timely.

About three quarters of this first volume are devoted to a review of surface chemistry and the remainder to an account of industrial catalysts. Each chapter (of which there are eight) is written by a person who is regarded as a leader in that particular field so that it is not surprising that the book as a whole is well and clearly written.

The first five chapters provide good, up-to-date critical reviews of physical adsorption, measurement of surface areas, chemisorption, and rates of surface reactions and contain about 500 references to the literature, ranging from Langmuir's earliest work to the present time.

The following two chapters describe catalyst carriers, promotion, acceleration, poisons, inhibitors, and catalyst preparation, principally from an industrial point of view. While there is no doubt that these are two valuable chapters, many readers may have preferred that they be included in a later volume.

The final chapter gives a concise account of the relationships between magnetic and catalytic properties of materials.

The book can be recommended to anyone interested in catalysis and surface chemistry, and will form a valuable part of all reference libraries.

J. T. LAW

DIE METALLURGIE DER FERROLEGIERUNGEN. Edited by R. Durrer and G. Volkert. Published by Springer, Berlin, Goettingen, Heidelberg, 1953. Price 72.00 DM, about $16.00.

The last comprehensive treatise on the subject of ferroalloy production is the one of the Frenchman Coutagne, which was printed in 1924, just 30 years ago. This incomprehensible gap has now been filled with the appearance of a book written in German under the direction of two well-known iron and steel electrometallurgists. R. Durrer and G. Volkert. It is astounding that, despite the fact that the United States possesses one of the most powerful ferroalloy industries of the world, no such book ever was written by one or the other of the many specialists of this country. The lethargy in this field is illustrated by the almost complete absence of publications on this subject in the TRANSACTIONS of this Society. This secrecy is barely understandable when considering that so much of the current U. S. practice originates in foreign countries, such as the Söderberg electrode, the Elchem rotating hearth furnace, the low carbon silicochrome and Perrin processes. The lack of English written textbooks is aggravated by the curious fact that no American university teaches applied electrothermics, so that students who want to introduce themselves to this kind of metallurgy are most seriously handicapped. The new book presents the problems of ferroalloy production from the continental European angle, but American publications, as far as they exist, have duly been reported.

The subject matter of the book has been divided into five different sections, written by 14 different authors, among whom there is one American. Yet inhomogeneity has been mostly avoided, coordination is excellent, and repetitions are few. The first section concerns the general principles of the metallurgy of ferroalloys; the second

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the construction of furnaces and the electrical problems involved, such as those of transformers, electrode regulation, switching arrangements, electrical conditions, wild and blind phases; the third section is written by specialists on electrodes, amorphous, graphite, and Söderberg type, while the next one concerns the specific methods of production of the following ferroalloys: FeCr high and low C, FeCo, FeMn high and low C, FeMo, FeNi, FeP, FeSi, FeTa, FeCb, FeTi, FeV, FeW, and FeSiZr. In the last section new outlooks for ferroalloy production are exposed, especially with regard to the arrival of a potential competitor, the low shaft, oxygen blast furnace.

The highly interesting section IV on the production of ferroalloys refers not only to arc furnace practice, but all other methods are also well reported, such as aluminothermic, silico and metallothermic processes, as well as blast furnace practice; most interesting comparisons are made, especially with regard to respective economic limits. Many details are given as to aluminothermic procedures, which up to now have not been described in the literature.

In spite of the outstanding quality of this book, there may be some critical remarks as to the following points. Despite the fact that so many high class specialists have been called upon to bring the subject matter up to date, the reader will still be quite bewildered after reading certain chapters as to what is the real present-day practice. This occasional lack of knowledge of the authors is apparent from the fact that the old book of Coutagne is referred to in many places in almost any chapter as a valuable source of information. On the other hand, those authors who are really aware of modern practice have a tendency to overplay their subject and their chapters are bulging over compared to those presenting subject matter of greater importance. For instance, forty pages concern the, no doubt, most interesting German war practice of ferrovanadium production from low vanadium pig iron, as compared with only nine pages on ferrosilicon production. This chapter on German vanadium practice is the best treatise on this matter that has been published. The same observation concerns the reclamation of manganese from slags. However, those engaged at present in this country in winning manganese from similar materials would certainly gain a lot of knowledge just by reading these pages, in which converter practice is condemned in favor of blast furnacing, followed by arc furnace reduction.

In spite of these few hypertrophies it can be said that this book is an invaluable source of information for the electrothermics man, and that it does away with a lot of the secrecy, spread over this field of metallurgy mostly by practitioners with no academic training.

W. J. KROLL

RECENT PATENTS

Selected by Fred. W. Dodson, Chairman of the Patent Committee, from the Official Gazette.

March 2, 1954

Shortsleeve, F. J., and Nicholson, M. E., 2,671,050, Stainless Steel Alloy and Apparatus for Converting Hydrocarbons

Aten, A. H. W., and Wiechers, S. G., 2,671,055, Process for Electrodialyzing Aqueous Liquids

Sherrick, P. H., 2,671,123, Radiant Heating Furnace

Bagley, G. D., 2,671,124, Electric Reduction Furnace

Héraud, A., 2,671,125, Sheath-Insulated Flat-Cell Battery

MANUSCRIPTS AND ABSTRACTS FOR FALL MEETING

Manuscripts are now being received for the Fall Meeting of the Society, to be held at the Statler Hotel in Boston, October 3, 4, 5, 6, and 7, 1954. Subjects to be covered at the technical sessions will be Battery, Corrosion, Electrodeposition, and Electrothermics.

To be considered for this meeting, triplicate copies of manuscripts or abstracts (not to exceed 75 words in length) must be received at Society headquarters, 216 West 102nd Street, New York 25, N. Y., *not later than July 15, 1954.*

Ray, C. H., and Sears, J. N., 2,671,153, Electric Control Device and Electrolytic Fluid Therefor

Burstein, E., 2,671,154, Infrared Detector

Douglas, R. W., and Lindell, O. E., 2,671,156, Method of Producing Electrical Crystal-Contact Devices

Morey, W. A., 2,671,181, Servomotor Control Apparatus for Electric Furnaces and the Like

Kenty, C., 2,671,184, Flashing Discharge Device

Racine, M. J., and Coppell, C. L., 2,671,188, Simplified Metallic Rectifier Assembly

March 9, 1954

Foyn, K., 2,671,816, Cylindrical Electrode Holder

Groddeck, K. B., 2,671,817, Electroactive Radiation Screen

Turck, J., 2,671,818, Thermopile

Field, B. R., 2,671,819, Lid of Electric Accumulators

Herbert, W. S., 2,671,820, Combination Jumper Insulator

Macomber, O. B., 2,671,890, Battery Post Terminal

March 16, 1954

Carlile, F. S., 2,671,944, Apparatus for Manufacturing Battery Grids of Calcium and Lead Alloy

Lewin, G., 2,671,954, Vapor Electric Device

Malloy, J. E., 2,672,429, Electrical Steel

den Hertog, H. J., and Bruin, P., 2,672,438, Hydrochlorination of Unsaturated Organic Compounds by Electrical Discharge

den Hertog, H. J., and Bruin, P., 2,672,439, Hydrobromination of Olefinic Compounds by Electrical Discharge

den Hertog, H. J., and Bruin, P., 2,672,440, Production of Alcohols from Olefinic Compounds by Electrical Discharge

White, R. J., 3,672,441, Electrode for Measuring Ion Concentration in Solutions

Wollentin, K. W., and Nagy, R., 2,672,451, Improved Cadmium Halophosphate Phosphors

Lamb, R. H., 2,672,491, Electric Arc Furnace and Cover with Electrodes and Feed Conduits

Sukacev, L., 2,672,492, Thermopiles

Tingle, L., and Brandon, J. M., 2,672,493, Immersion Thermocouple Construction

Fleischer, A., 2,672,494, Nickel Oxide-Carbonyl Nickel Sintered Plates

Fleischer, A., 2,672,495, Sintered Plate for Nickel-Cadmium Secondary Batteries

Lubeck, C. H. O., 2,672,496, Inset Plate for Electrodes of Alkaline Accumulators

Burns, H. C., and Wilson, H. D., 2,672,497, Method of Producing Storage Batteries

Temple, L. M., 2,672,498, Battery

Radeke, W. H., 2,672,499, Battery Cell Inspecting and Testing System

Ewing, S. P., 2,672,587, Cathodic Protection of Tank Bottoms

March 23, 1954

Duncan, D. W., and Eustis, P., 2,673,178, Electrolysis of Zinc Chloride

Duncan, D. W., and Eustis, P., 2,673,179, Process for the Recovery of Zinc

Emanuel, W. A., Sweeney, K. O'N., and Mahoney, J. F., 2,673,180, Production of Electrolytic Zinc

Hubert, B., 2,673,227, Electrode Holder with Fluid Control

Kistler, S. S., 2,673,228, Induction Furnace with High-Temperature Resistor

Khek, M., 2,673,229, Low-Frequency Induction Furnace for Melting Nonferrous Metals

Brennan, J. B., 2,673,230, Battery Separator

Kennedy, H. A., 2,673,231, Storage Battery Cap

Silsby, C. C., Jr., 2,673,232, Feed Device for Electrolytic Cells

Beese, N. C., 2,673,304, Crater Lamp

Odell, N. H., 2,673,312, Semiconductor Device

March 30, 1954

Vonada, E. E., 2,673,836, Continuous Electrolytic Pickling and Tin Plating of Steel Strip

Lowe, C. S., and Ricks, H. E., 2,673,837, Electrolytic Production of Fluoborates

Booth, F., 2,673,887, Manufacture of Separators for Electric Batteries

Melnikoff, N., 2,673,888, Treatment of Storage Battery Plates

Lilienfeld, J. E., 2,673,955, Alternating Current Electrolytic Condenser

LITERATURE FROM INDUSTRY

ELECTRONIC TEMPERATURE CONTROL. Bulletin gives information on the new electronic temperature control, Series 97. The control is applicable in production processes for electric, steam, and hot water heaters; baths of all kinds; ovens, kilns, and dryers; plastic extrusion presses; and has a number of other uses. Available for wide ranges in temperature and operates on the principle of the change of resistance of a wire-wound sensing element with changes in temperature. The manufacturer will recommend and supply a complete range of control elements for use with the control. Robertshaw-Fulton Controls Co. P-208

LAPP PULSAFEEDER. 24-page, 2-color booklet describes line of PULSAFEEDER diaphragm-type controlled volume pumps. The maintenance-free feature of no stuffing box is stressed; it is also pointed out that PULSAFEEDER, although basically a pump, also functions as a chemical feeder, meter, instrument, filling machine, proportioner, and sampler. Also covered in detail are special liquid handling assemblies. Both manual and automatically-controlled types are described. Several pages are devoted to the Auto-Pneumatic Pulsafeeder, pointing out its adaptability to automatic volume adjustment from commercial pneumatic instruments. Lapp Insulator Co., Inc. P-209

DECADE SHUNT. A low cost micro-microammeter results from combining a Keithley Electrometer and new Decade Shunt, described in a recent 2-page bulletin. The Shunt provides 10 current ranges, permitting full-scale readings over the enormous range of 2 ma down to 2 $\mu\mu$a, over 100 times the sensitivity of current-sensitive galvanometers. Included in the bulletin are full specifications and circuit schematic diagrams of such typical uses as accurate measurement of photocell currents, capacitance, and extremely high resistances. Keithley Instruments. P-210

REGULATED POWER EQUIPMENT CATALOGUE. A new general catalogue is available on the manufacturer's entire standard line of instruments, which includes electronic a-c voltage regulators, regulated d-c sources and "B-Supplies," electronic frequency changers, inverters, magnetic-amplifier d-c sources, and

related equipment. The catalogue provides abundant general information on the operating principles of Sorensen instruments and complete specific data on each instrument; also pictures, general descriptions, electrical and mechanical specifications. Sorensen & Co., Inc. P-211

PORTABLE TEMPERATURE INDICATORS. 8-page bulletin just issued describes two portable temperature indicators, the Potentiometer Indicator and the Resistance Thermometer. Described in detail are operating adjustments, features of design, test circuits, measuring elements, and instrument specifications. An entire page is devoted to listing the standard scales available, covering temperatures from −200° to +2800°F. Tables also list the type of thermocouple or resistance bulb recommended for each range, as well as the degrees of temperature indicated by each scale division. Also covered is the use of portable pyrometers in checking installed pyrometric instruments and in replacing potentiometers which are temporarily out of service. The Foxboro Co. P-212

"RUBBER LININGS." Illustrated, 2-color, 8-page brochure gives information on the advantages and application of rubber lining to steel tanks, drums, pipes, valves, fittings, and pumps. Included are important tables giving the resistance characteristics of MW rubber lining to inorganic acids, salts and alkalies, organic materials, and a wide group of miscellaneous materials. Details on the chemical, abrasive, and temperature resistant qualities of rubber linings and the different types of linings available are also given. Metalweld, Inc. P-213

ELECTROMETER VOLTAGE DIVIDERS. D-C potentials to 20,000 volts can be measured with a Keithley electrometer and new voltage dividers, presented in a new bulletin. Designated the Models 2006 and 2007, the resistive dividers have division ratios of 100:1 and 1000:1, respectively, maximum inputs of 2000 and 20,000 volts, and input impedances of 10^{12} ohms. Combining an electrometer and new voltage divider results in a high-impedance d-c kilovoltmeter with several unusual features—wide selection of voltage ranges, polarity sensitivity, very short time constant, and unusual portability. Uses include measuring voltages on cathode ray tubes, photomultiplier tubes, radiation equipment, and leakage of high-voltage insulators. Keithley Instruments. P-214

ARITEMP RESINS. Brochure, including data sheets, describes line of ARITEMP resins for casting and encapsulation of electrical components. These resins are extremely resistant to both high and low temperatures, have excellent mechanical properties, exhibit a marked adhesion to metals, and a high resistance to water vapor transmission. Have excellent electrical properties, which makes them well suited for applications in the electronics industry. Aries Laboratories, Inc. P-215

ELECTRONIC AIR CLEANERS. 8-page booklet describes electronic air cleaners for homes and smaller commercial and industrial building areas. Discussed are construction features of the horizontal and vertical air-flow units; also specifications, dimensions, size estimation, principle of operation, methods of testing air filter efficiency. Typical commercial and industrial applications are listed. Electro-air Cleaner Co. P-216

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NEW PRODUCTS

CHROMATE REDUCER. A new product called "Chromekill 4A" has been announced for destruction of hexavalent chromium in alkaline cleaning and plating solutions. Designed to give a dual action. Contains materials for fast reduction of hexavalent chromium to the harmless trivalent chromium state; also contains more stable reducing agents to give prolonged protection. The material is available as a fine free-flowing powdered mixture and is used in concentrations of the order of ¼ oz/gal. Enthone, Inc. N-77

ENAMEL STRIPPER. New enamel stripper, nonflammable, mild in odor, and pleasant to use, removes Epoxy type enamels and most other enamels. Suitable for removing enamels from brass and other base metals, including aluminum and steel. The stripper is operated at room temperature; the enamel is removed by a wrinkling action, and the stripper and loosened enamel are removed from the work by means of a water rinse. A water seal is used to reduce evaporating losses. The stripper is supplied as a thin clear liquid in steel drums. Enthone, Inc. N-78

CONDUCTIVITY CELLS. A new series of electrolytic conductivity cells for use with Dynalog Conductivity Instruments are designed for high and low conductivity measurements, detecting the concentration of acids, bases, and salts in solution. Low-conductivity cells (constants of 1, 0.1, and 0.01) are available in two types, both designed for insertion in a pipeline or a tank. High-conductivity cells (constants of 10 and 100) also furnished in two types, one for insertion, the other a dip type for open tanks. The Foxboro Co. N-79

4-WAY VALVE. Now available is a new hand-and-foot operated 4-way valve with patented built-in, full-capacity, flow-control meters of the Venturi type. Specifically designed for the control of double acting air or hydraulic cylinders. The flow control meters permit full-line volume without loss of pressure. Line-pressure variation will not affect valve function. The valve is also available for remote pilot operation, cam, single or double solenoid, together with time-delay features. Noncorrosive throughout; extremely compact. Airmatic Valve, Inc. N-80

RECEIVER-INTEGRATOR UNIT. A receiver-integrator for graphic panels has been designed for use with the company's line of compact Consotrol instruments. A pneumatic-electric instrument, the new Type 224 Receiver-Integrator computes an accurate and continuous total of any process flow and operates a small counter located in the graphic display. Consists of two small, self-contained units: a remote counter and a flow receiver. Available for uniform or square root scales to totalize minute, hourly, or daily rates. Developed chiefly for graphic-type panels, it is equally suited to control cabinet installations where compact instrumentation is desired. The Foxboro Co. N-81

MICRO-OPTICAL PYROMETER. An entirely new type of optical pyrometer, known as the Pyro Micro-Optical Pyrometer, has been developed to meet the demand not only for higher degrees of accuracy but also greater versatility in the measurement of temperatures over 700°C (1300°F). Designed particularly for precision temperature measurements in the laboratory, yet sufficiently portable to be used for general plant applications. Capable of measuring targets less than 0.001 in. in diameter and, by means of supplementary lenses, can be adjusted for focal distances varying from 5 in. to infinity. Mountings on table-top and floor type tripods available, and the vernier worm gears permit extremely fine vertical and horizontal adjustments of the telescope. The Pyrometer Instrument Co. N-82

HOOK-ON VOLT-AMMETER. New hook-on volt-ammeter is believed to be the first with automatic scale changing. Designated the AK-5, the pocket-size unit is designed to measure current and voltage quickly and accurately. A valuable aid in balancing circuits, tracing faults and grounds, estimating distribution circuits, and diagnosing operating troubles, the volt-ammeter is an essential accessory for engineers, contractors, maintenance and service men, and many others. Has a current range of 5/20/80/350 amperes. Measures a-c voltage in three ranges (150/300/750) without auxiliary equipment, provides accuracy up to 3% of full scale, and withstands a voltage breakdown test of 4000 volts a.c. General Electric Co. N-83

GLENNITE NONLINEAR DIELECTRICS. New materials available in thin sheets from 0.002 to 0.025 in. thickness, or as finished units complete with electrodes, leads, and protective coatings. Narrow loop materials have low losses, are suitable for high frequency applications. Square loop bodies have high remanent polarization necessary for memory work. Typical applications: dielectric amplifiers, memory devices, modulation, voltage tuning, frequency doubling, sweep circuits, variable filters. Glenco Corp. N-84

To receive further information on any New Product or Literature from Industry listed above, send inquiry, with key number, to JOURNAL of The Electrochemical Society, 216 West 102nd Street, New York 25, N. Y.

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"ADJUST-A-VUE HANDLE." Manufacturers of the "260" Volt-Ohm-Milliammeter will incorporate a new utility handle on Model 260's. The new handle carries the trade name "Adjust-A-Vue Handle" and permits the technician to set his tester at any convenient viewing angle while he is servicing. Eliminates the use of old-fashioned, bulky, bird cage accessory devices. Stays cleaner in actual service since there are no large dirt-collecting pores in its smooth surface. Constructed of steel coated with tough Durez plastic. Simpson Electric Co. N-85

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